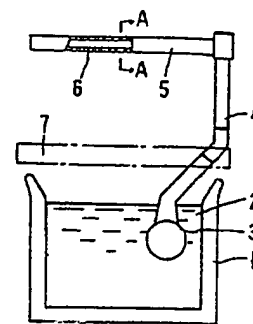


(54) **MOLTEN SALT INJECTING METHOD FOR COOLING STEEL AND NOZZLE HEADER TO BE USED THEREIN**

(11) 6-41628 (A) (43) 15.2.1994 (19) JP  
 (21) Appl. No. 4-201122 (22) 28.7.1992  
 (71) NIPPON STEEL CORP (72) TAKEFUMI SUZUKI(1)  
 (51) Int. Cl.<sup>8</sup>. C21D1/46, C21D1/00, C21D1/607, C21D1/667, C21D9/52

**PURPOSE:** To effectively eliminate clogging at the nozzle header part including a nozzle, to surely prevent clogging at a low cost without using a special device, and to execute injection cooling of the molten salt for the steel.

**CONSTITUTION:** When cooling is executed by injecting the molten salt from a number of nozzles at the upper and lower nozzle headers following a main header 3 which is dipped in a molten salt bath 2 relative to the upper and lower surfaces of steel, the temperature of the molten salt bath 2 is first held higher than the solidifying temperature of the salt by 50°C, and at the same time, the molten salt from the main header 3 is injected upon the surface of steel by using an upper nozzle header 5 coated with a heat insulation material and the nozzle 6. Once the injection is stopped, and then, the injection is re-started without causing any clogging of the nozzle 6.



(54) **METHOD FOR FORMING OXIDE PASSIVITY FILM CONSISTING ESSENTIALLY OF OXIDE CHROME AND STAINLESS STEEL**

OHM 103 B

(11) 6-41629 (A) (43) 15.2.1994 (19) JP  
 (21) Appl. No. 4-312179 (22) 20.11.1992 (33) JP (31) 91p.331349 (32) 20.11.1991(1)  
 (71) TADAHIRO OMI (72) TADAHIRO OMI  
 (51) Int. Cl.<sup>8</sup>. C21D1/76, C23C8/14, C23C8/18, C23F17/00, C25F3/24

**PURPOSE:** To provide a method for forming an oxide passivity film consisting essentially of chromium oxide where oxide film passivity film consisting essentially of the chromium oxide can be easily formed and to provide the stainless steel.

**CONSTITUTION:** Water contact is removed from the surface of the stainless steel by executing the electrolytic polishing, the composite electrolytic polishing and the fluidized grain polishing of the stainless steel, followed by executing the baking. Then, the heat treatment at the temperature of 300°C-600°C is executed in the gas atmosphere of the gaseous hydrogen or the mixture of the gaseous hydrogen and the inert gas containing oxygen less than 4ppm or the water less than 500ppb. This oxide of stainless steel is the oxide passivity film consisting essentially of chromium oxide where the thickness is not less than 5nm and the ratio of Cr/Fe (hereinafter referred to as atomic percentage:) on the outermost surface is not less than 1 or more.

(54) **SOFTENING HEAT TREATMENT METHOD OF STEEL FOR POWER TRANSMITTING PART**

(11) 6-41630 (A) (43) 15.2.1994 (19) JP  
 (21) Appl. No. 4-197020 (22) 23.7.1992  
 (71) KOBE STEEL LTD (72) YOSHITAKE MATSUSHIMA(3)  
 (51) Int. Cl.<sup>8</sup>. C21D6/00, C22C38/00, C22C38/22, C22C38/44

**PURPOSE:** To provide a softening heat treatment method capable of increasing the cutting property in the cutting without adverse effects on the strength and toughness after the carburization hardening when the steel to be used as the power transmitting part of a gear or the like to be used for automobiles, construction machines, industrial machines or the like is manufactured in the procedure of the warm or hot machining, the normalizing, the cutting, the carburizing or the carbo-nitriding hardening.

**CONSTITUTION:** Steel where the requirements C: 0.1-0.4%, Si: 0.15% or lower Mn: 0.3-2%, Cr: 0.2-2% are met, and Mo: 0.3-1% and/or Ni: 0.4-4.5% is satisfied is used. The steel is held at the temperature of 840-950°C in the normalizing process to be executed after the hot machining and before the cutting, and then the temperature is decreased, and held for 20-150 minutes at the temperature of 650-750°C, and cooled, obtaining the structure consisting essentially of ferrite pearlite.